

**TECHNICAL QUESTIONS & ANSWERS (Clarification)**  
**Design-Build Construction - Ground Source Heat Pump System - Mare Island VA Outpatient Clinic**  
**Vallejo, CA**  
**VA-701-11-RP-0051**

1. Please provide clarification and direction re: drawing no. MO.10. Information provided does not include a drill log describing conditions to 400 ft. deep. Existing report is incomplete. Please provide drill log to 400 ft. deep. Drilling and water cannot be estimated with information provided. If this information cannot be provided, a new test bore would be required.

ANS – VA has the drilling log up to 200 ft. Please provide proposal based on following:

- Medium gray to light brown siltstone from 150' to 400'
- Thermal Conductivity = 1.08 Btu/hr-ft-F
- Est. Thermal Diffusivity = 0.72 ft<sup>2</sup>/day
- Est. Average Heat Capacity = 36.3 Btu/ft<sup>3</sup>-F
- Undisturbed formation temperature = 65 F

Note: this is a design-build project. Before design starts, the successful contractor will test bore a hole from 200' to 400' and design will be based on the new drilling log.

2. Please clarify if the ground loop materials are required to be warranted by the manufacturer for 25 years.

ANS – Yes, this is a standard warranty for GSHP System.

3. The borehole depth shows 500' but the well field layouts specify 400'. The borehole depth shows 500' but the well field layouts specify 400'. Also is there any test bore information aside from the feasibility study that is attached?

ANS – change the borehole depth to 400' instead of 500'.